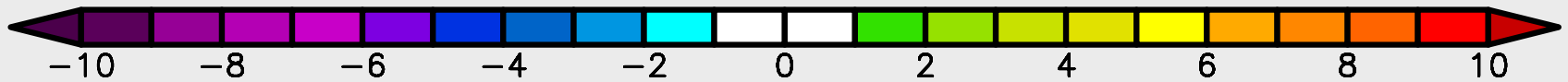
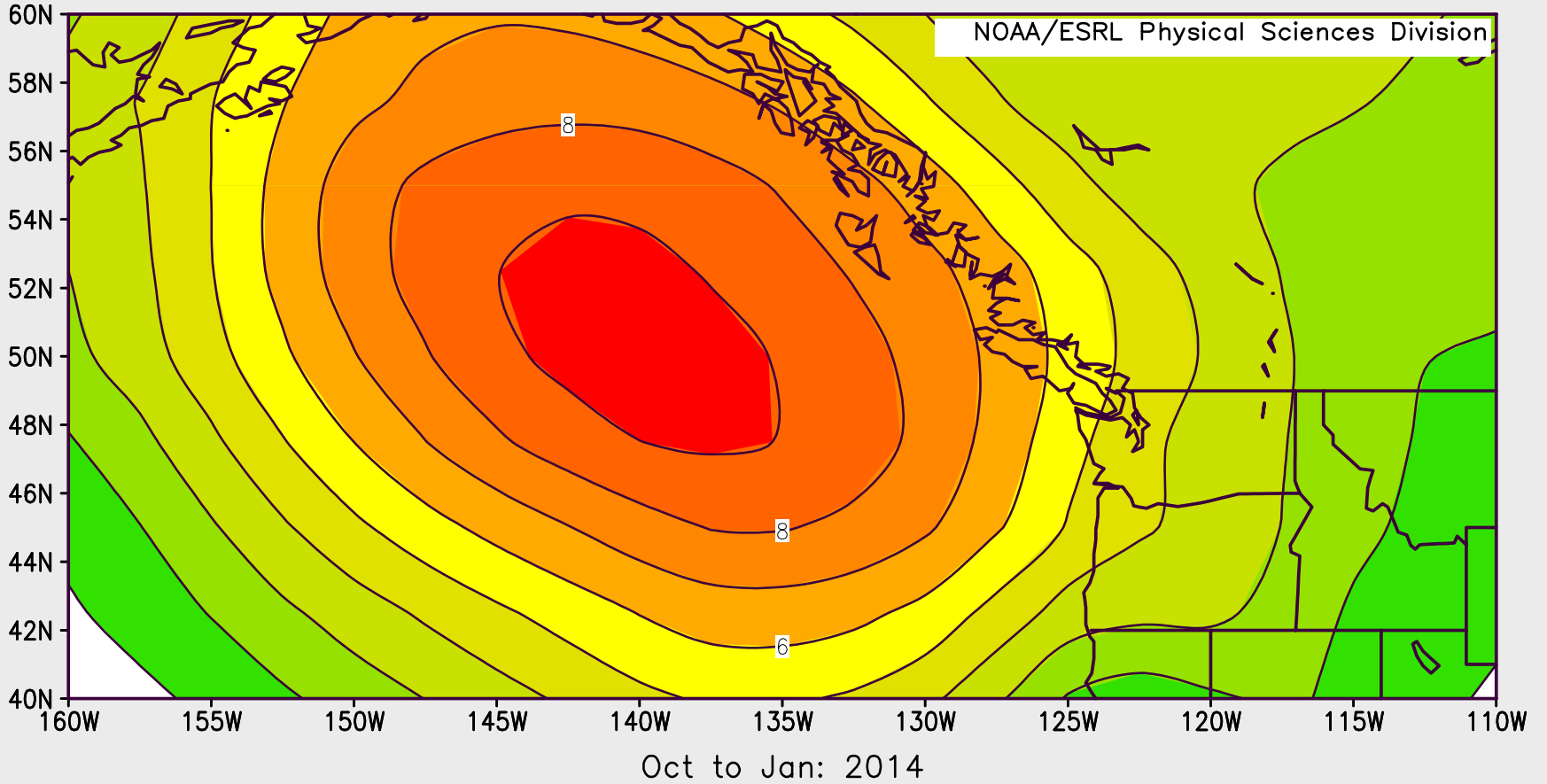
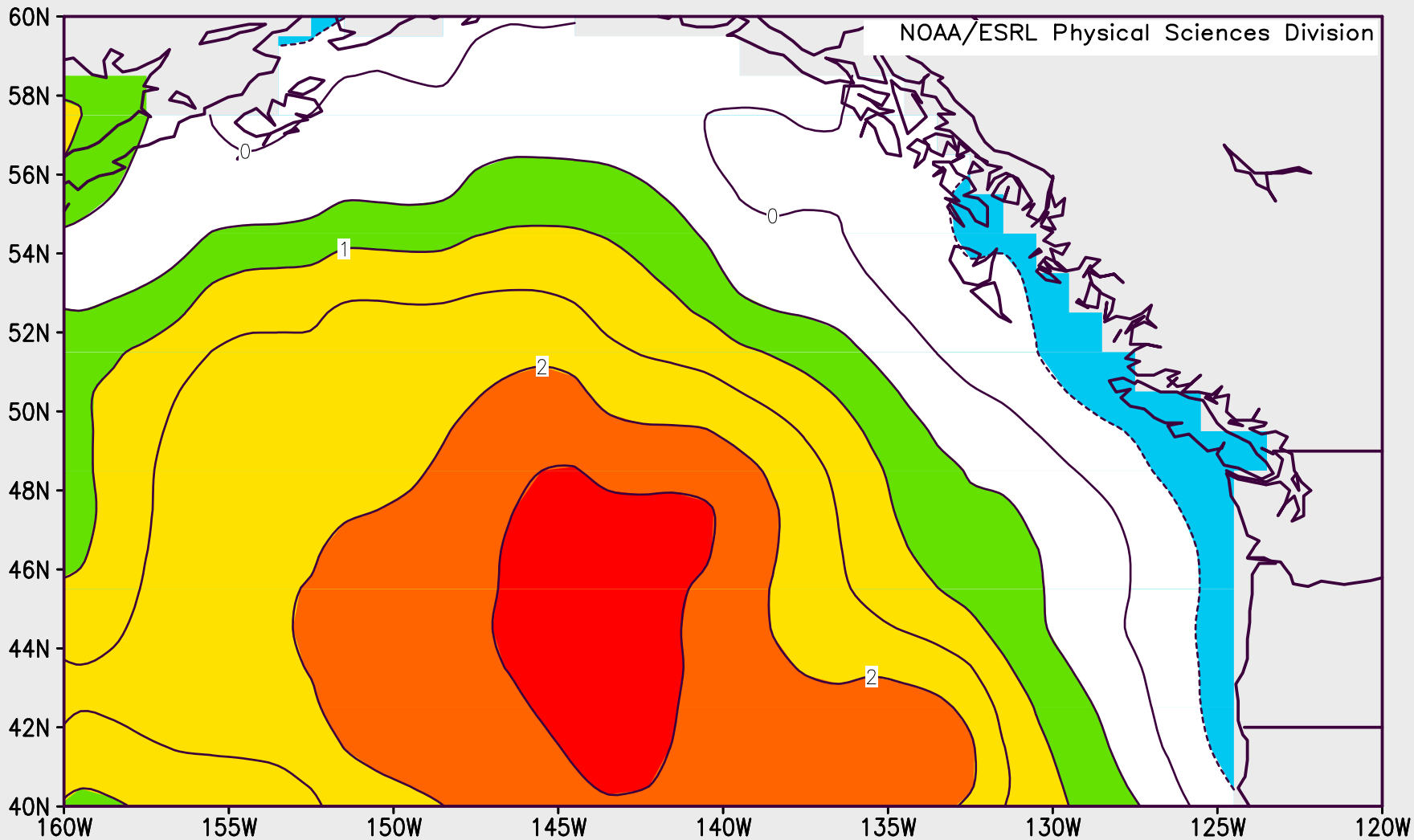


NCEP/NCAR Reanalysis
Sea Level Pressure (mb) Composite Anomaly 1981–2010 climo



NOAA OI SST
Surface SST (C) Composite Anomaly 1981–2010 climo



INDESCRIBABLE...

INDESTRUCTIBLE!

NOTHING CAN STOP IT!

THE BLOB

STEVEN
McQUEEN

ANITA CORSEAUT · EARL ROWE

PRODUCED BY JACK H. HARRIS · IRVIN S. YEAWORTH, JR. · THEODORE SIMONSON AND KATE PHILLIPS

DIRECTED BY

SCREENPLAY BY

FROM AN IDEA BY IRVING H. TULLOCH
A TONYIN PRODUCTION · LEE JAY DE LORE

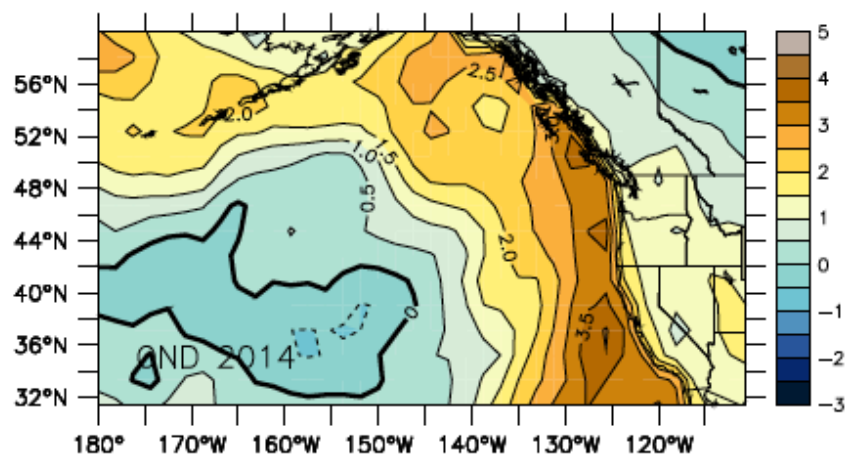
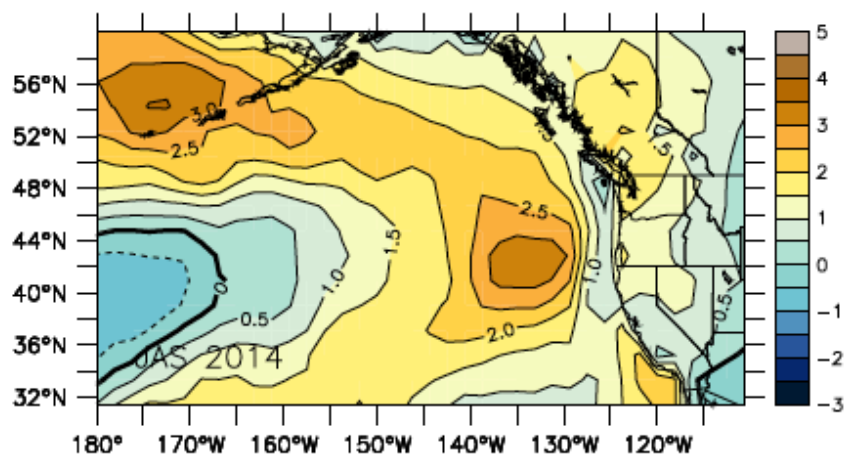
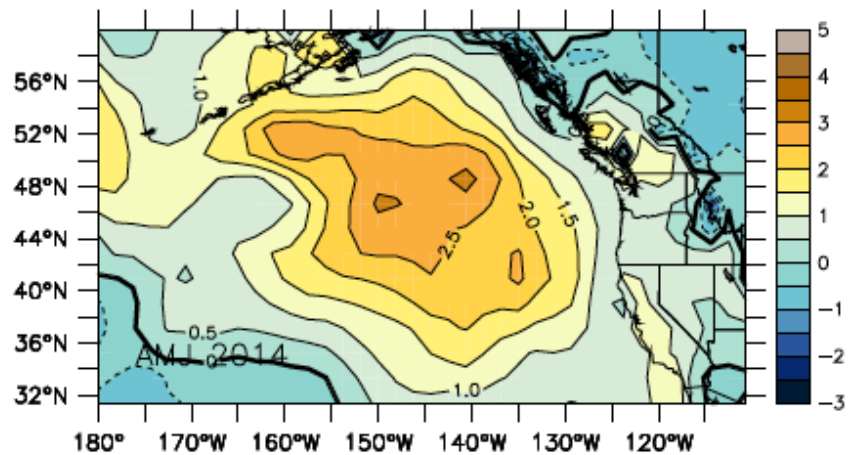
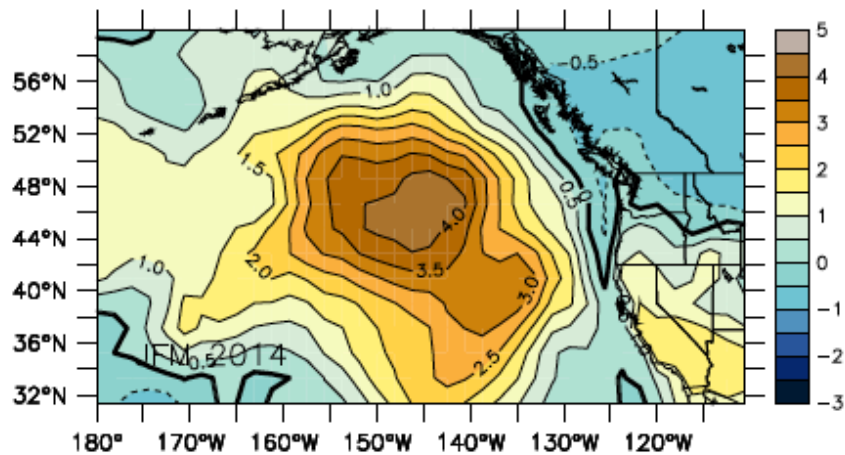
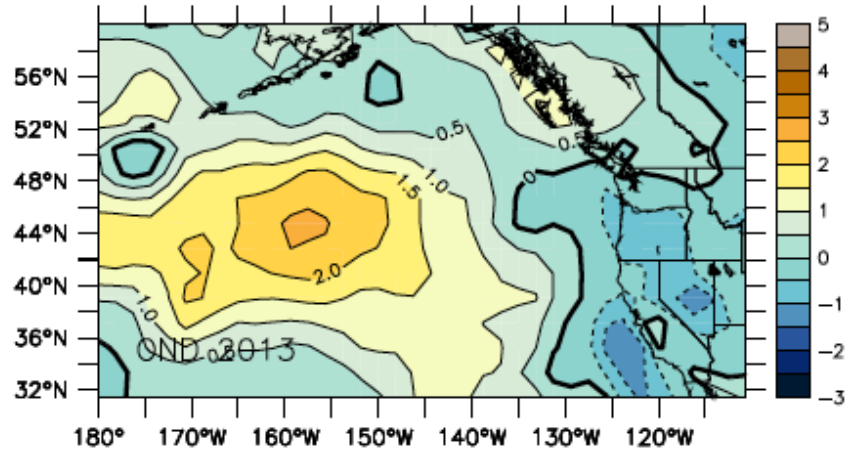
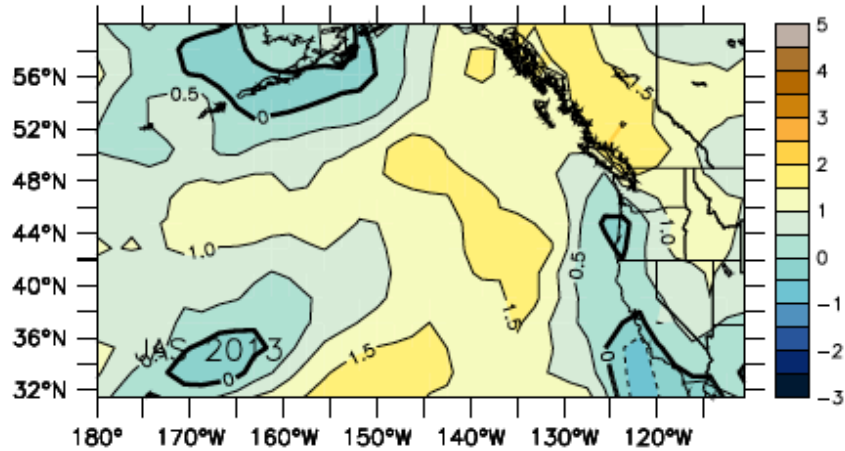


On the Warm SST in the NE Pacific

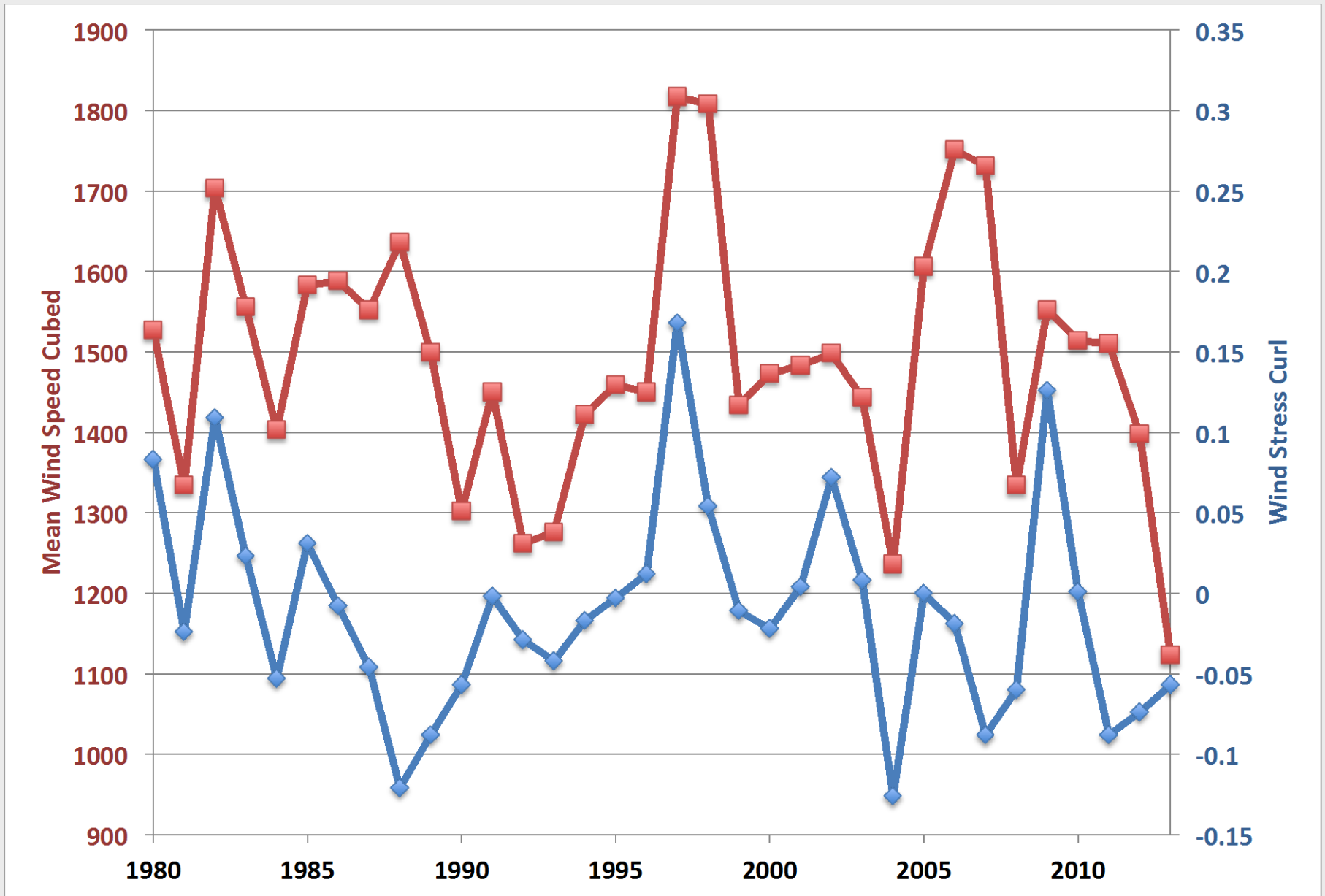


Formation of the Blob

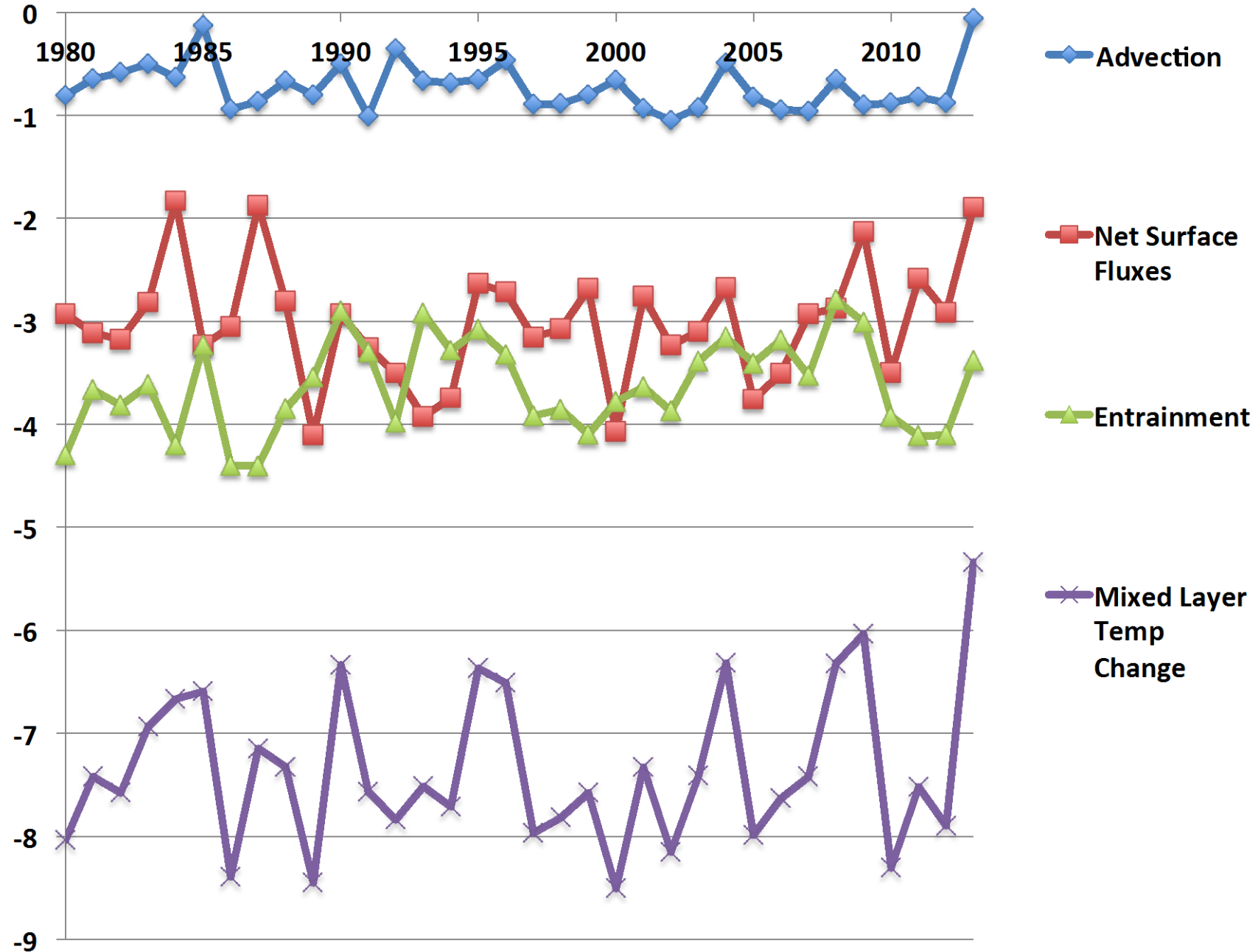
Regional Relationships with the Atmosphere



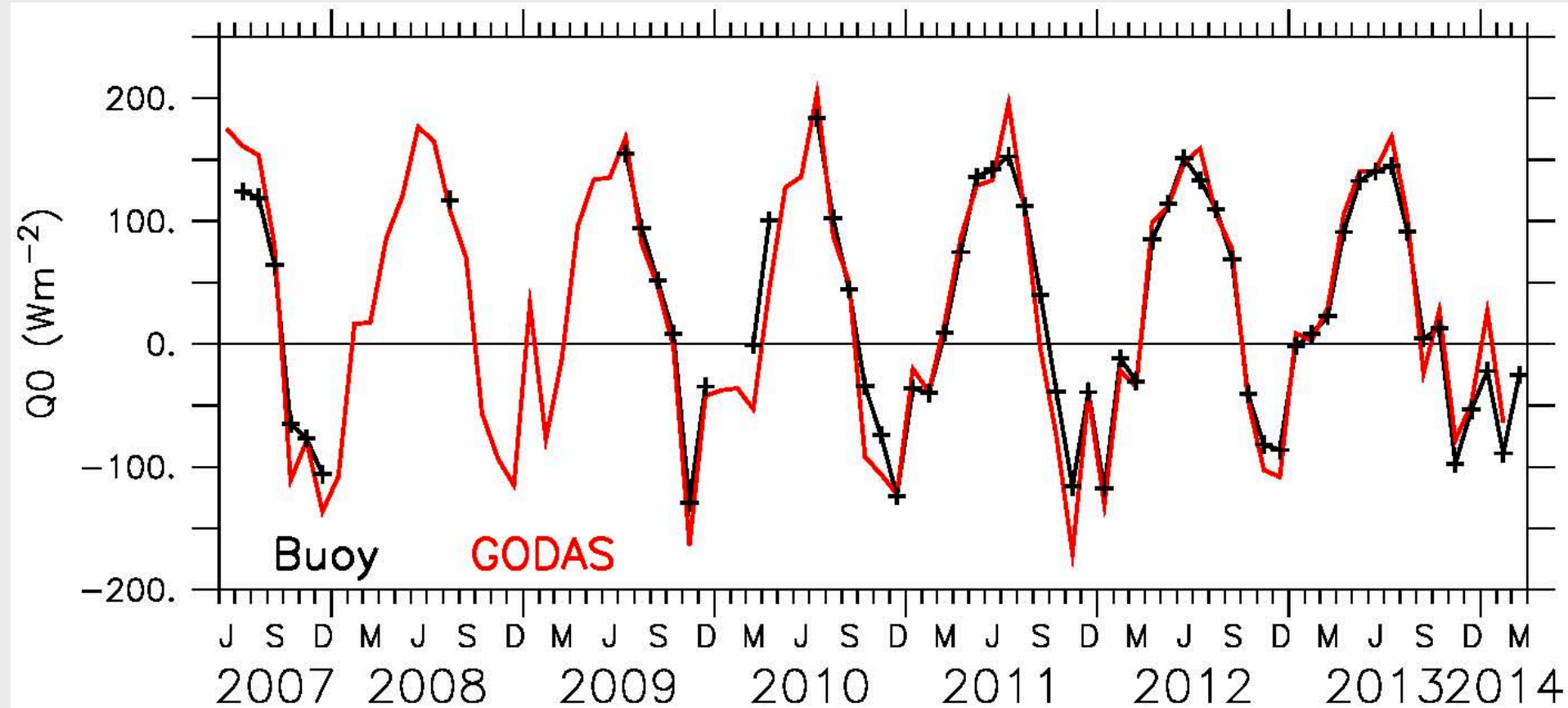
Atmospheric Forcing (40-50°N, 150-135°W)



Terms in Oceanic Mixed Layer Heat Budget (Oct-Feb)



Net Surface Heat Fluxes from Papa and **GODAS**





ASSESSMENT REPORT

Causes and Predictability of the 2011-14 California Drought

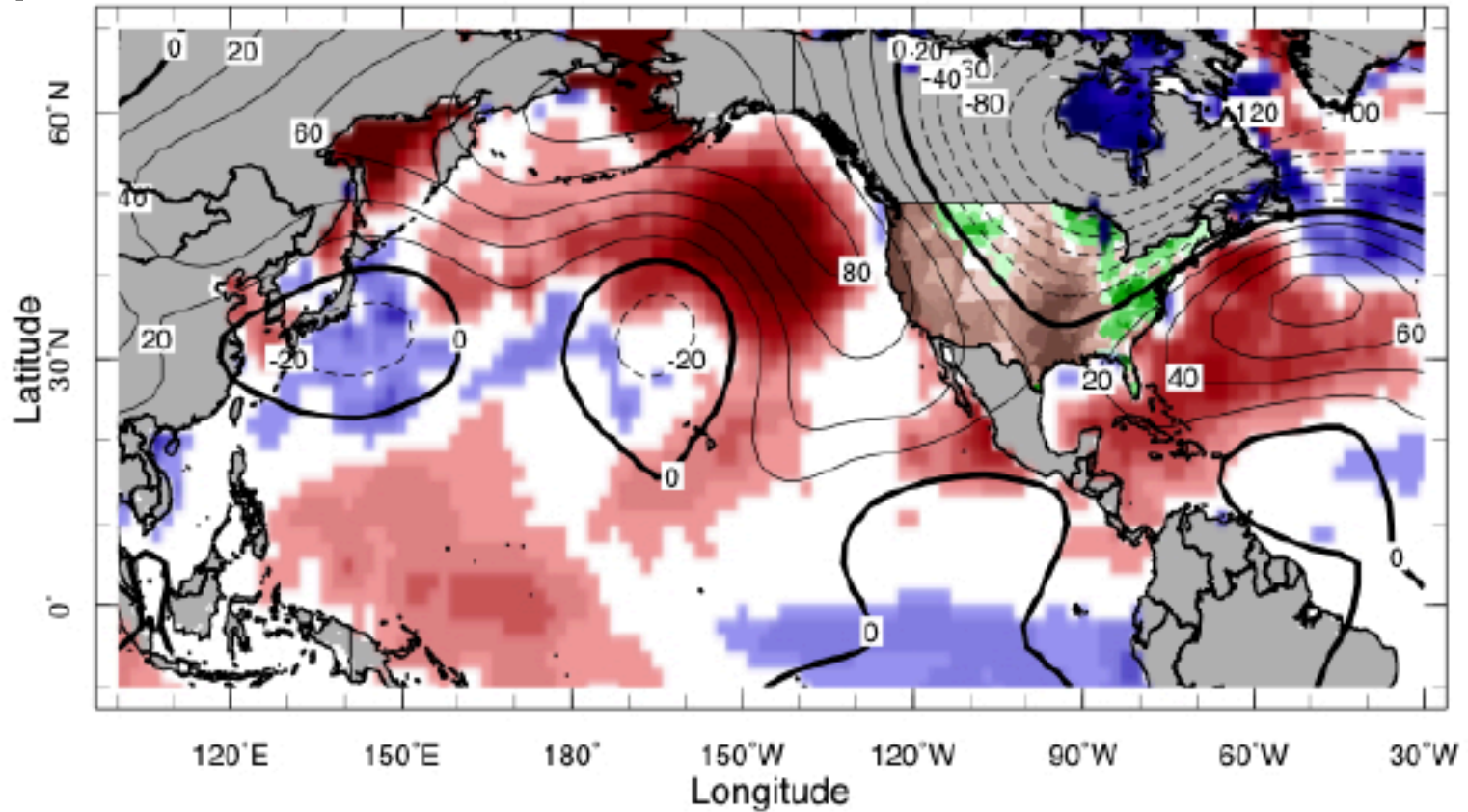
RICHARD SEAGER

Lamont Doherty Earth Observatory of Columbia University

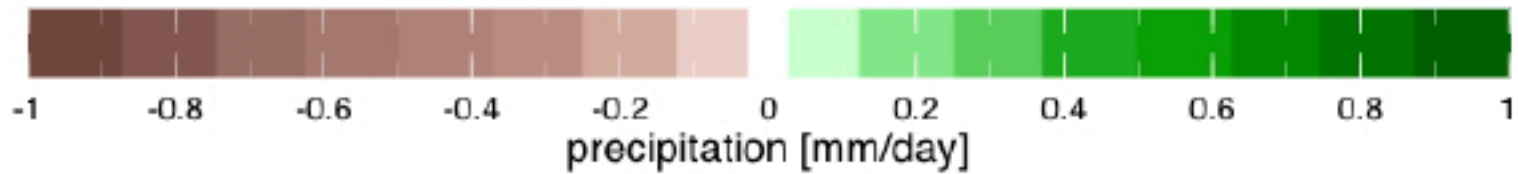
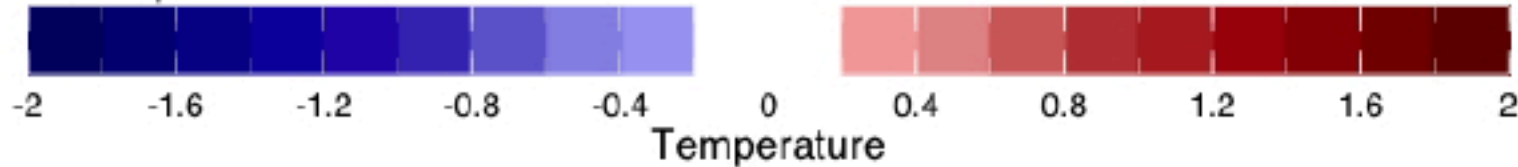
MARTIN HOERLING

NOAA Earth System Research Laboratory

Observed 200 hPa Z, SST & Precipitation Anomalies (c) 2013-2014

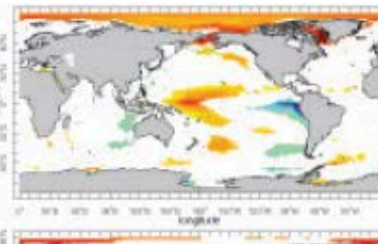
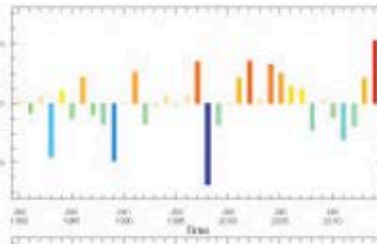
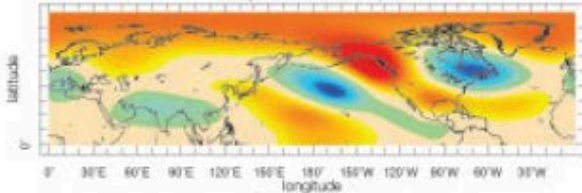


Nov 2013 - Apr 2014

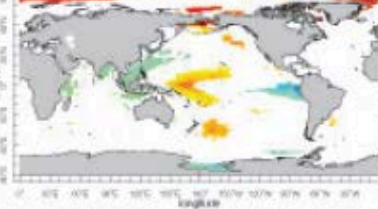
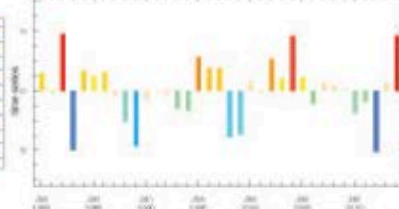
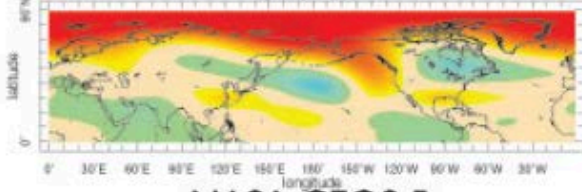


Model Anomalies w/ EOF3 SST

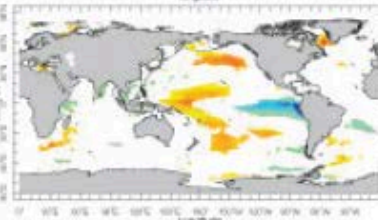
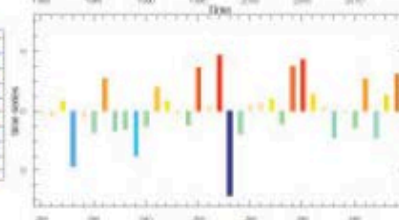
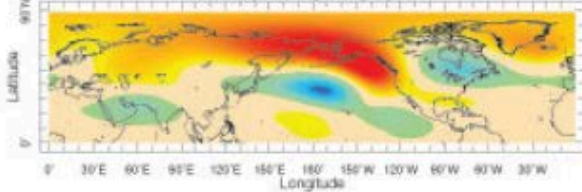
ECHAM 4.5



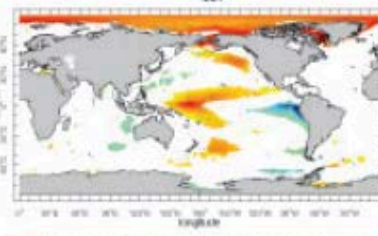
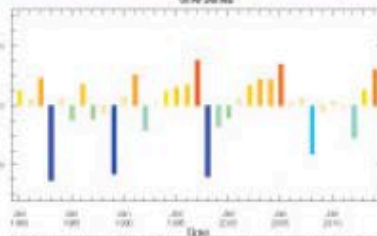
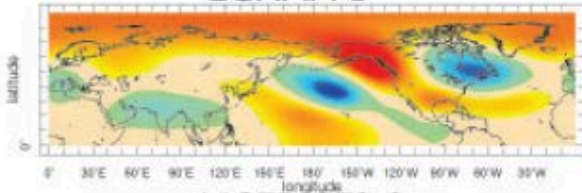
CAM4



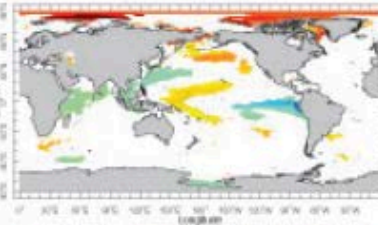
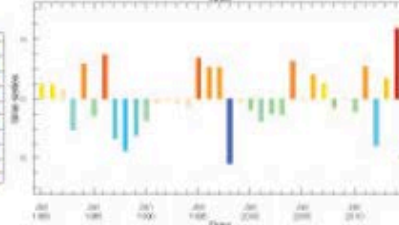
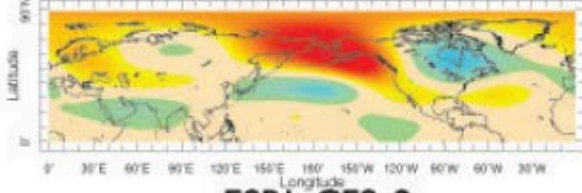
NASA GEOS-5



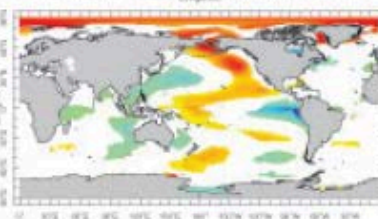
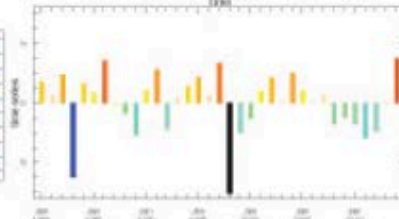
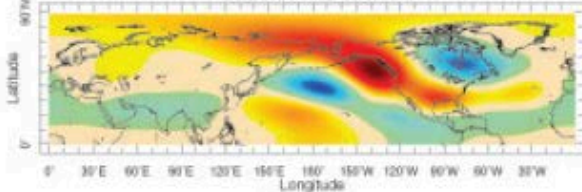
ECHAM 5



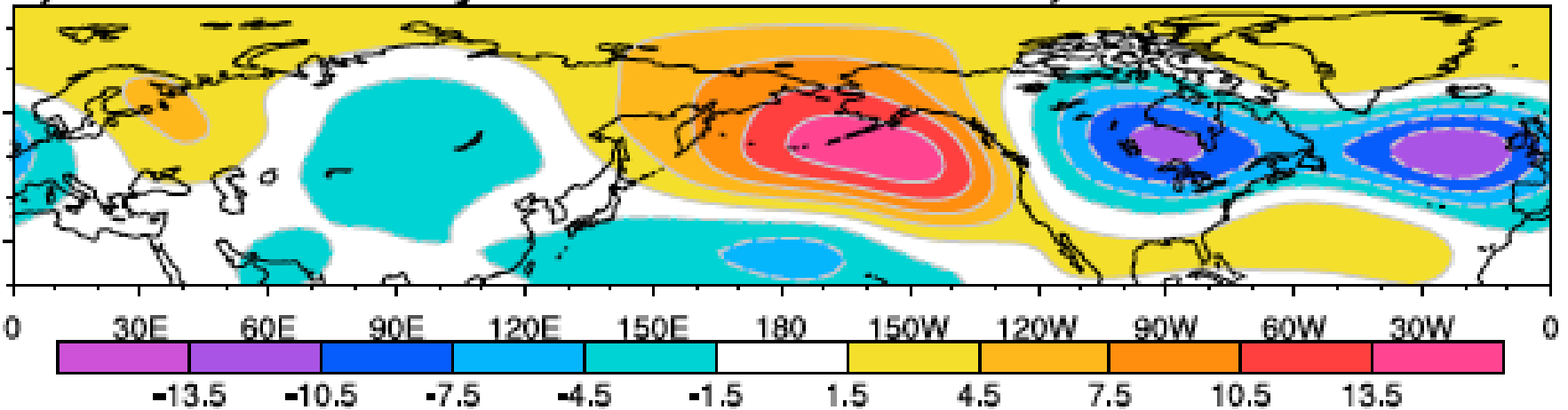
NCEP CFSv2



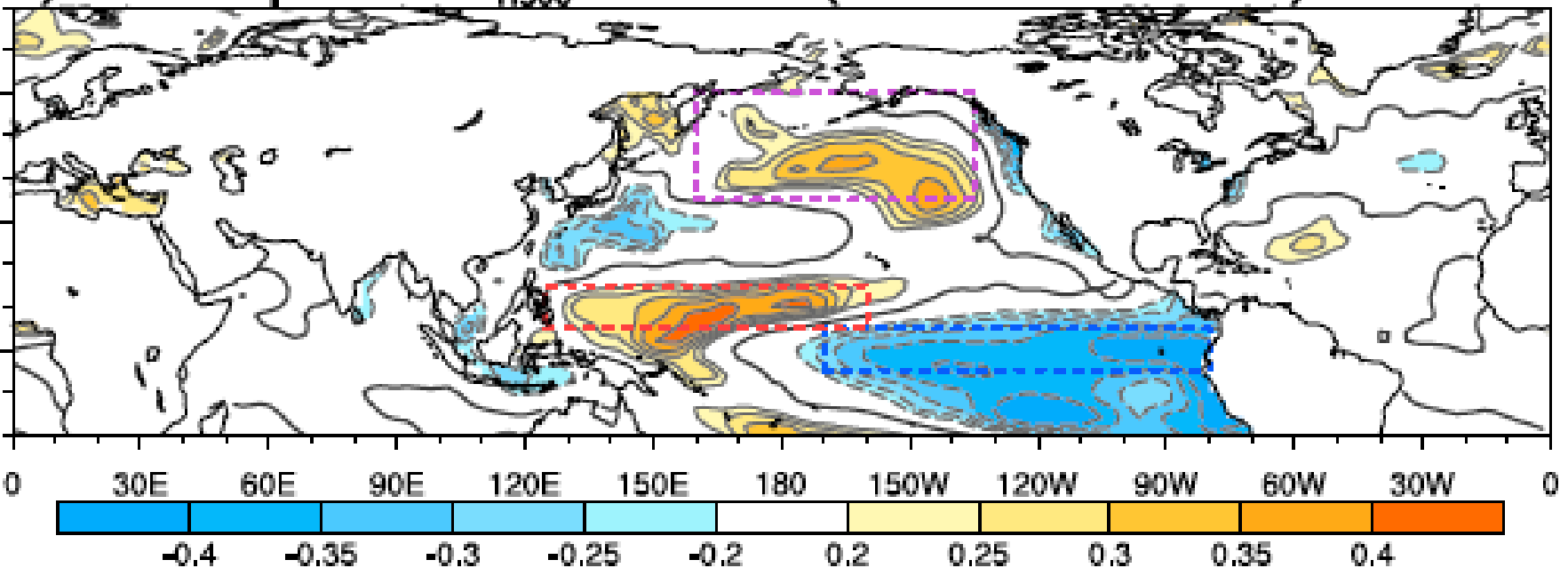
ESRL CFSv2



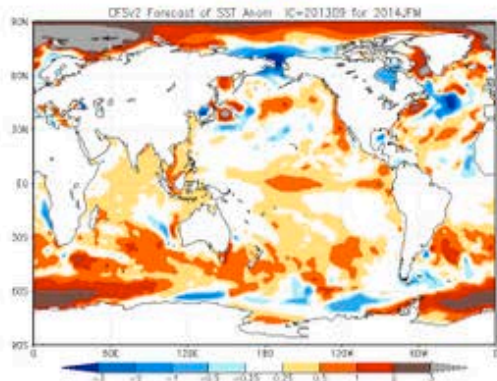
a) EOF 2 of monthly H500 in DJF 1981-2013, 14.2%



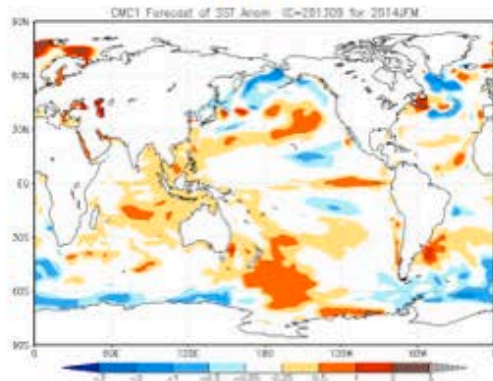
b) Corr. map for PC2_{H500} & ERSST (D-J-F In 1981-2013)



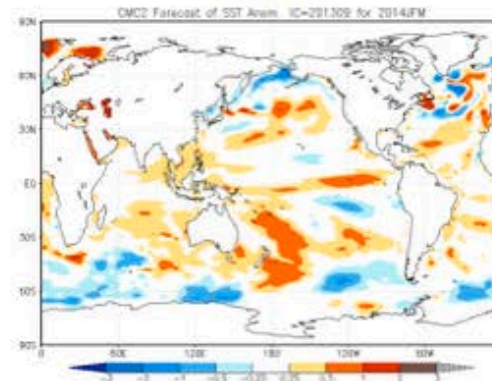
CFSv2



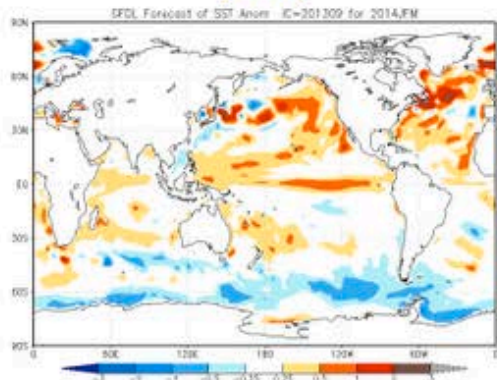
CMC1



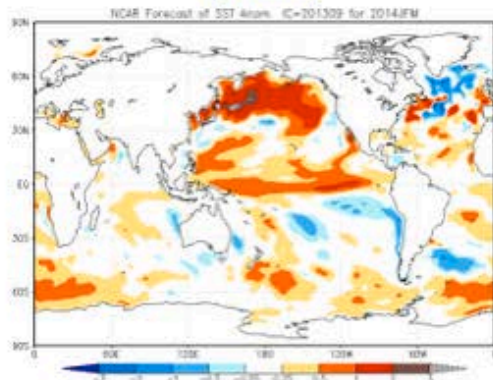
CMC2



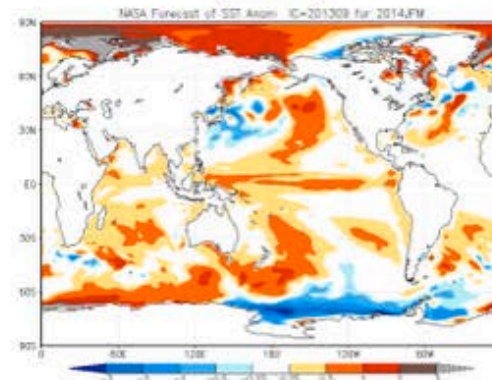
GFDL



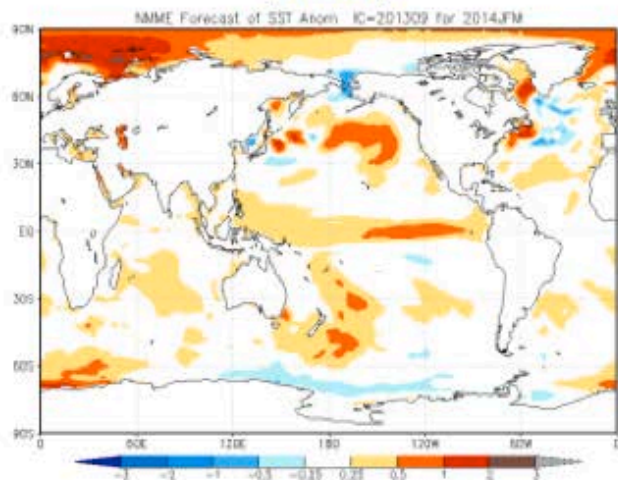
NCAR



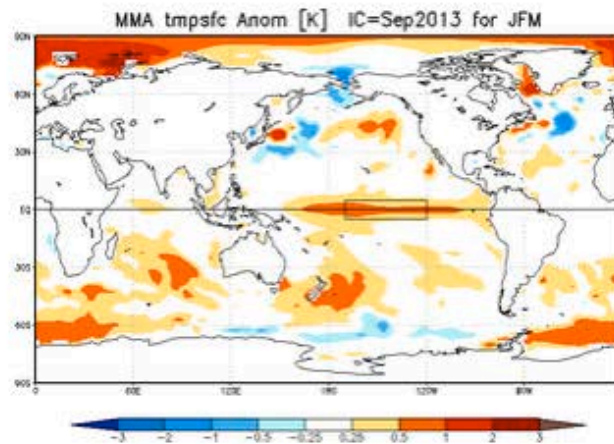
NASA



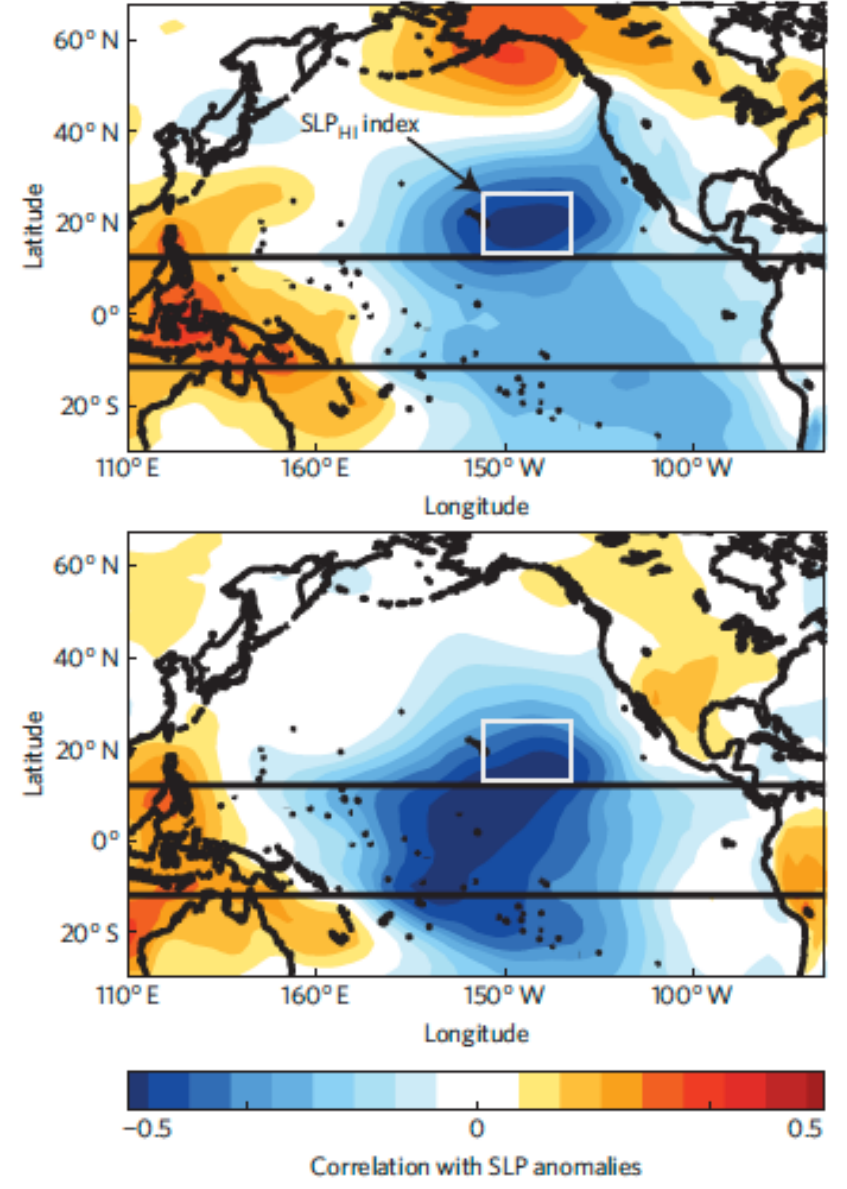
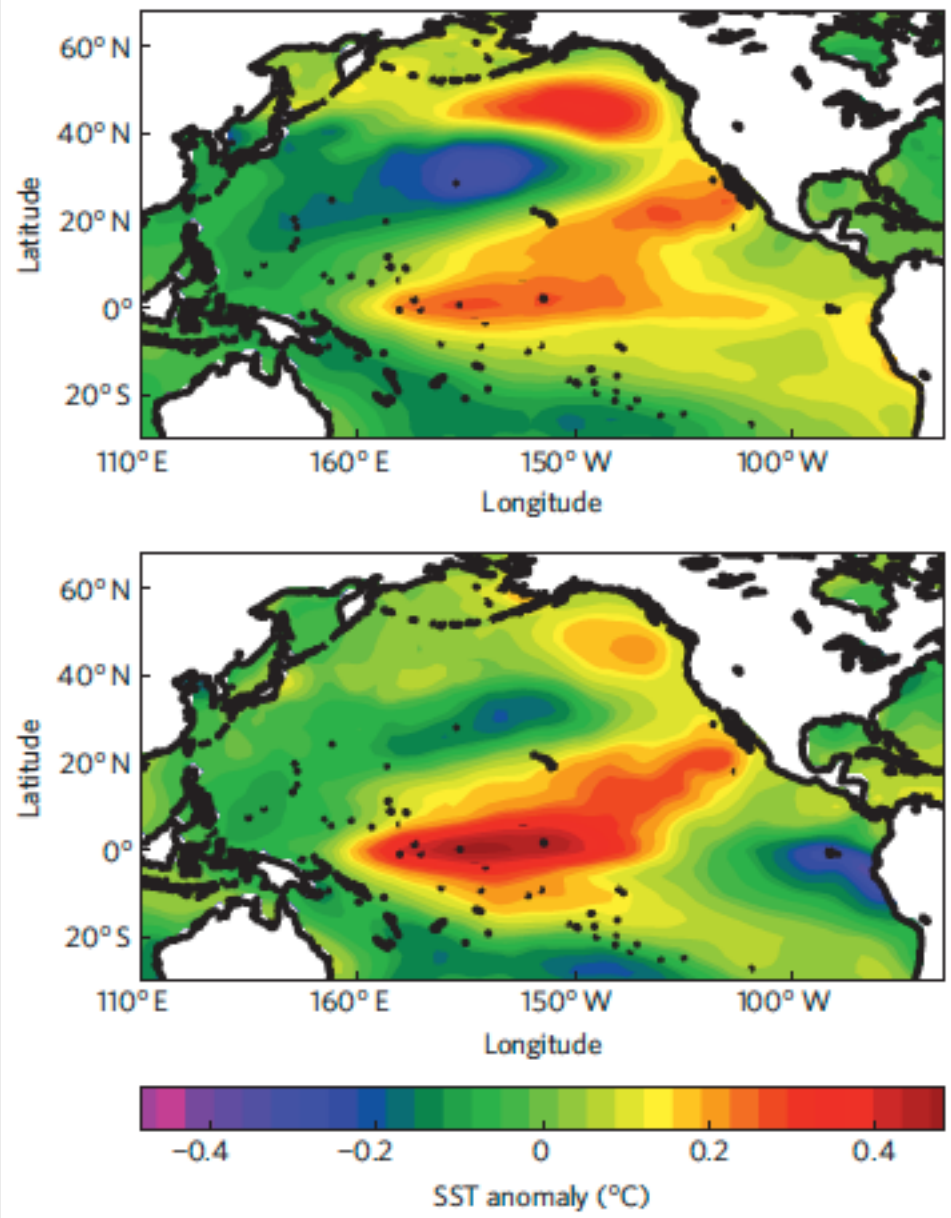
NMME



IMME



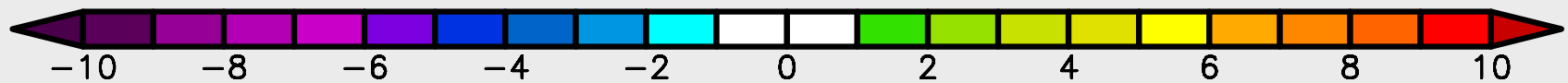
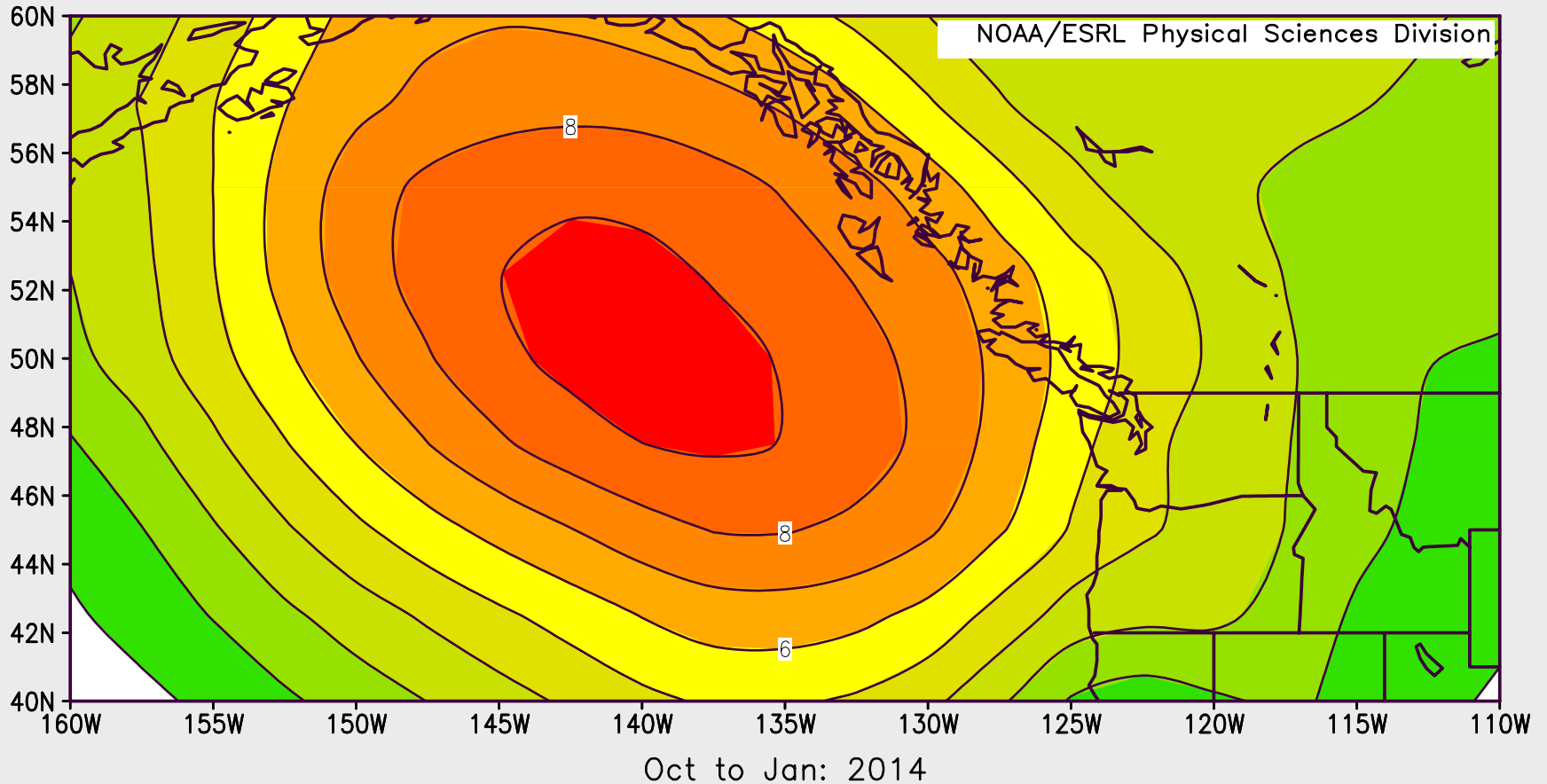
SST forecasts made early October 2013 for JFM 2014 from an ensemble of coupled atmosphere-ocean forecast climate models



Early Winter 2013-14 SLP Anomalies

NCEP/NCAR Reanalysis

Sea Level Pressure (mb) Composite Anomaly 1981–2010 climo

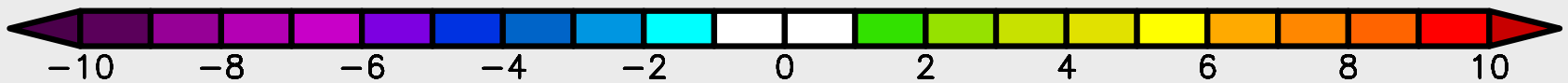
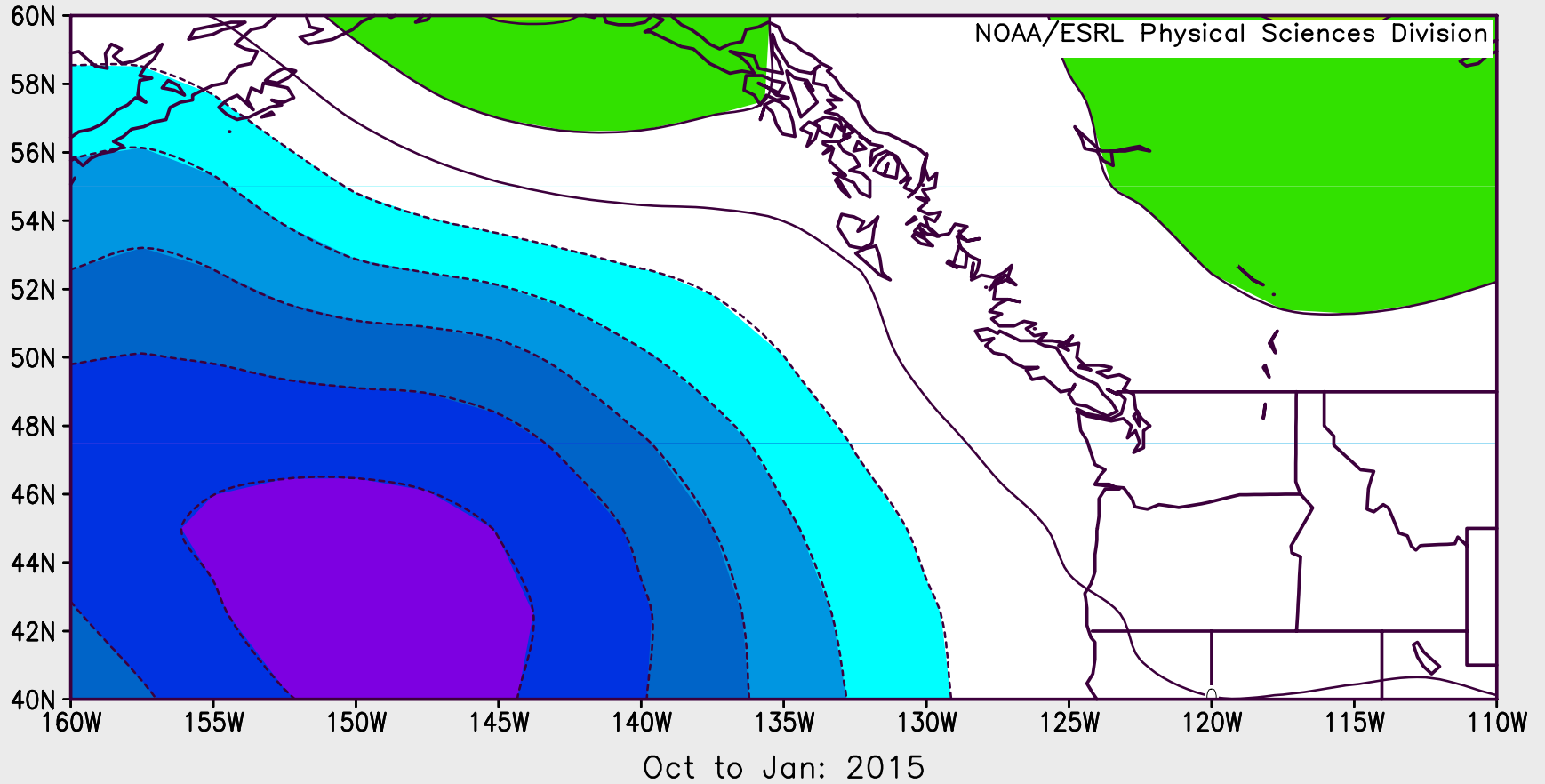


Early Winter 2014-15 SLP Anomalies

NCEP/NCAR Reanalysis

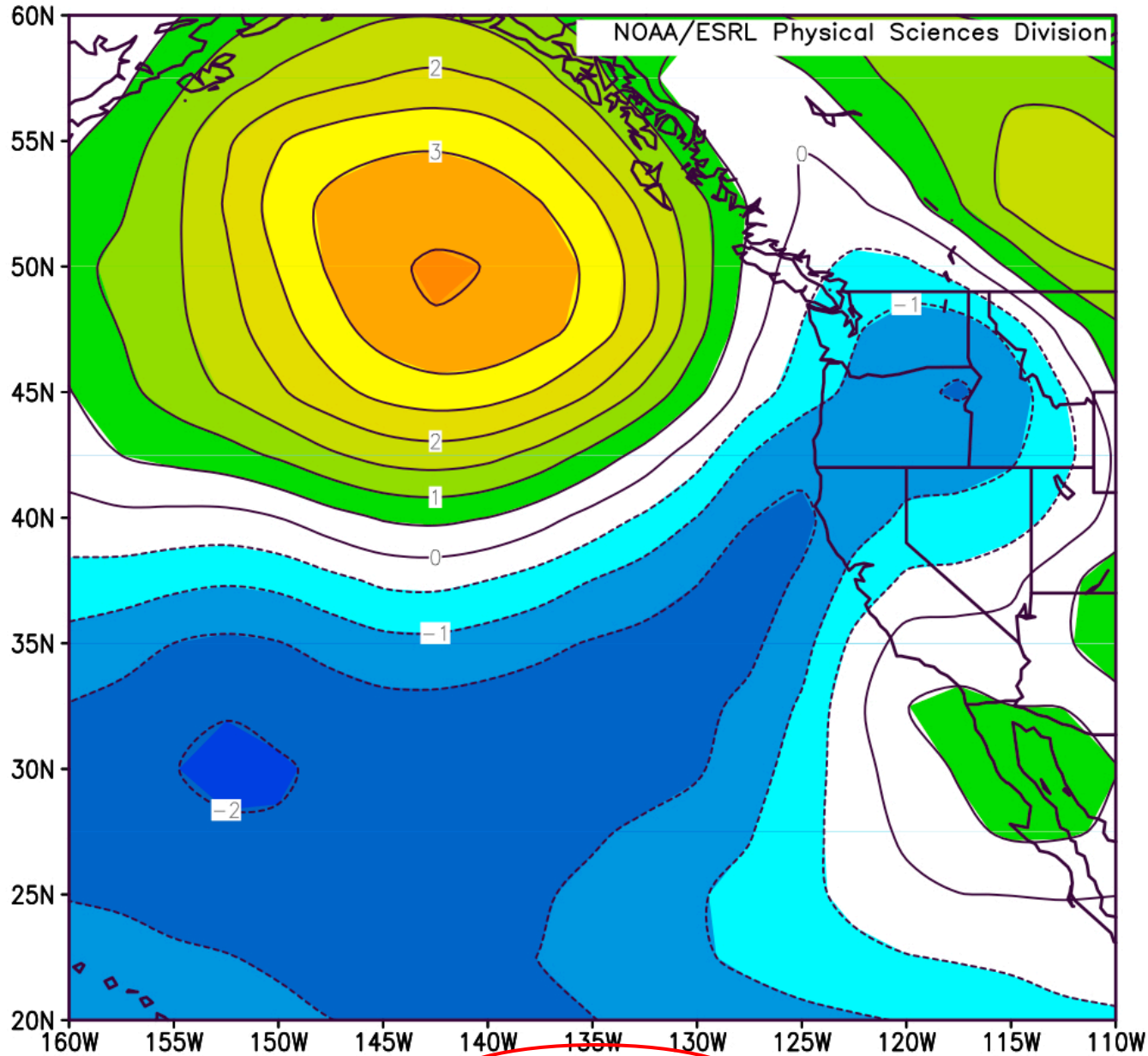
Sea Level Pressure (mb) Composite Anomaly 1981–2010 climo

NOAA/ESRL Physical Sciences Division



NCEP/NCAR Reanalysis

Sea Level Pressure (mb) Composite Anomaly 1981–2010 climo

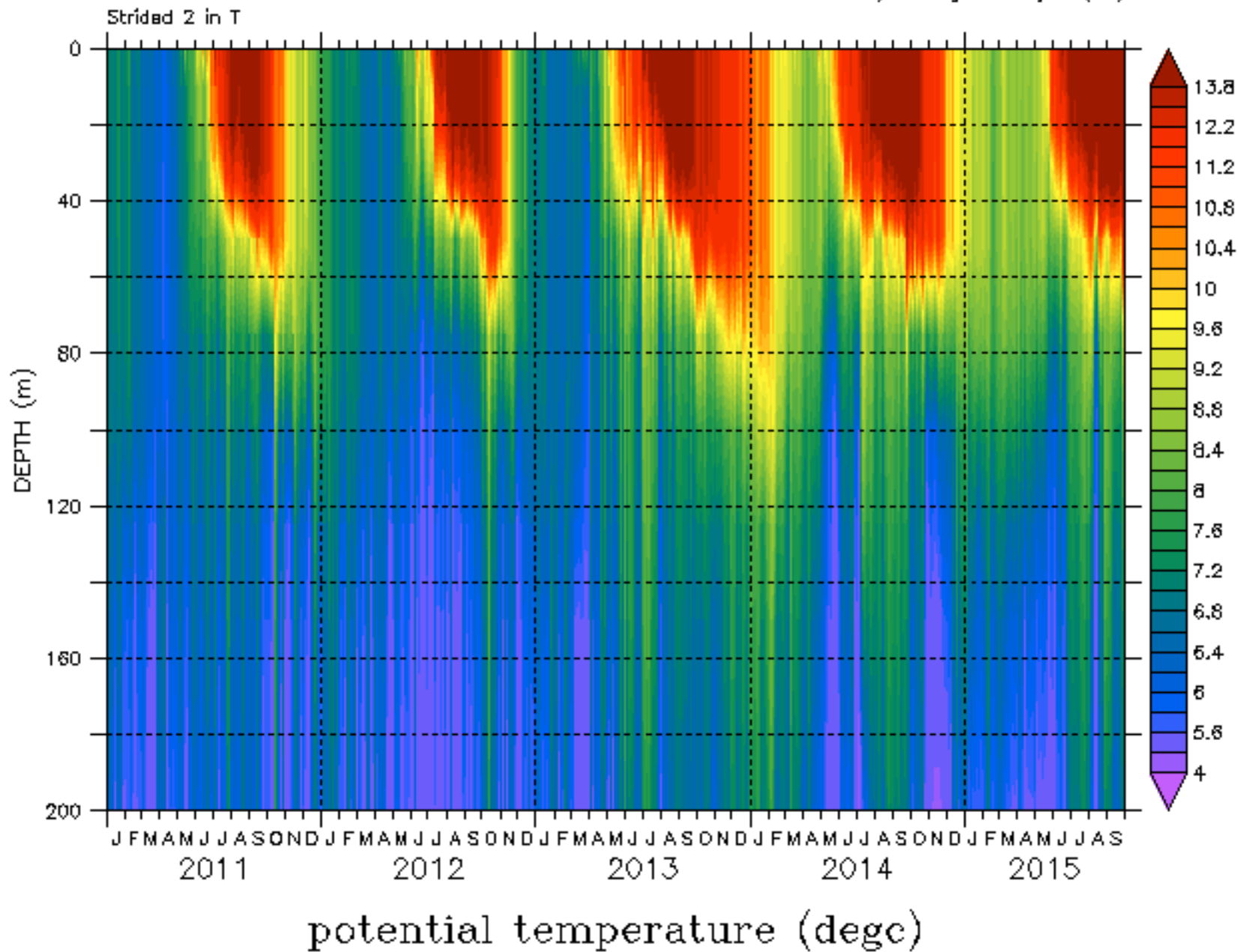


May to Jul: 2015

LONGITUDE : 145W(-145)
LATITUDE : 46.5N

Temperature Profile - Offshore

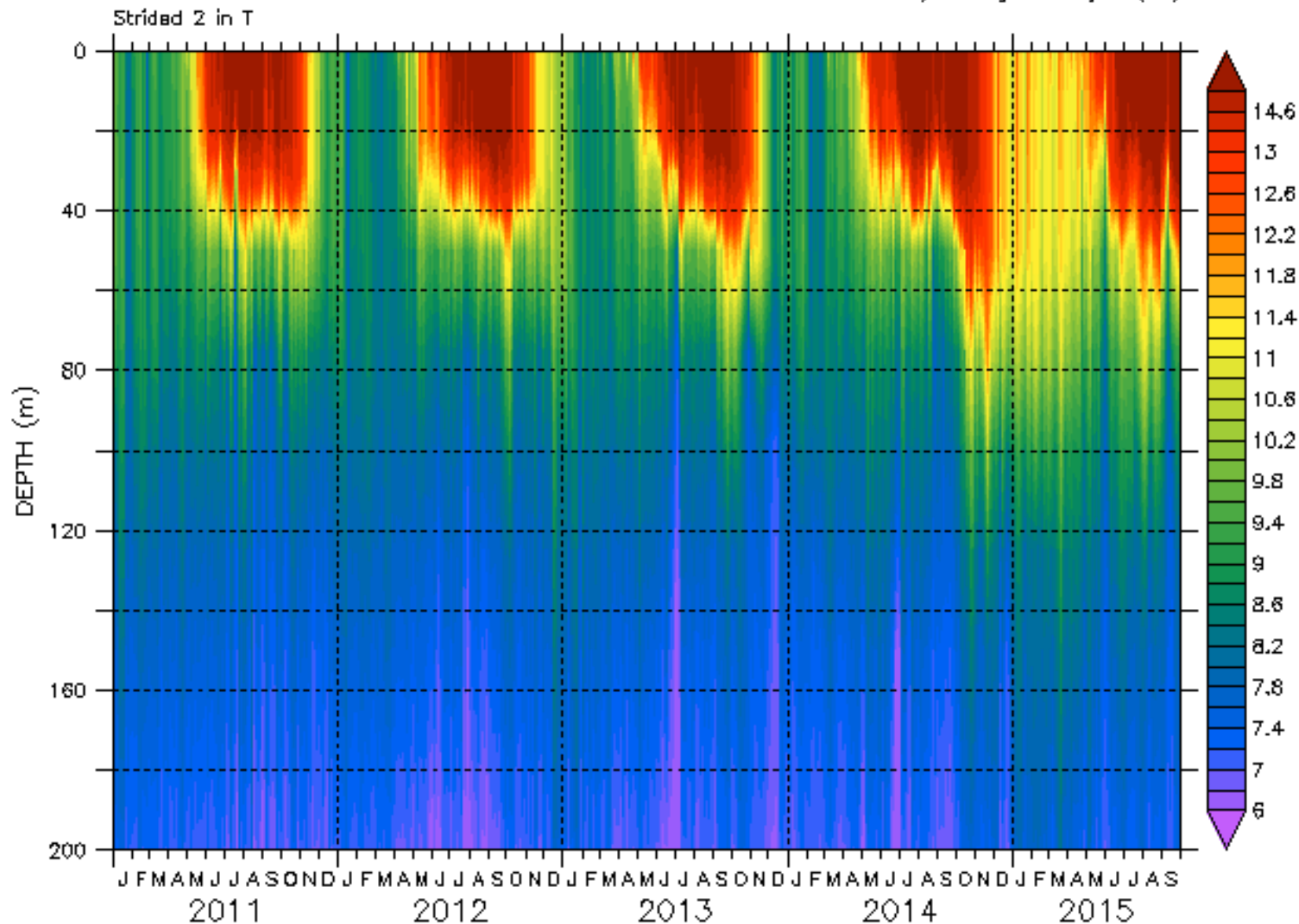
DATA SET: HYCOM + NCOA Global 1/12 Degree Analysis (3D)



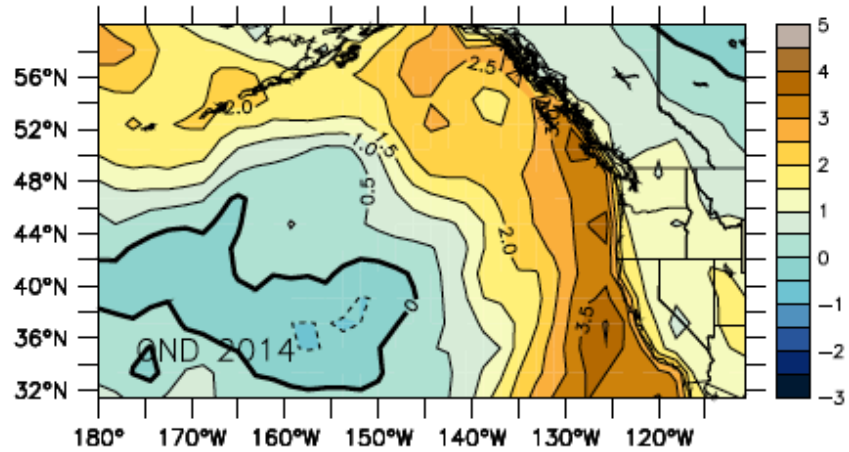
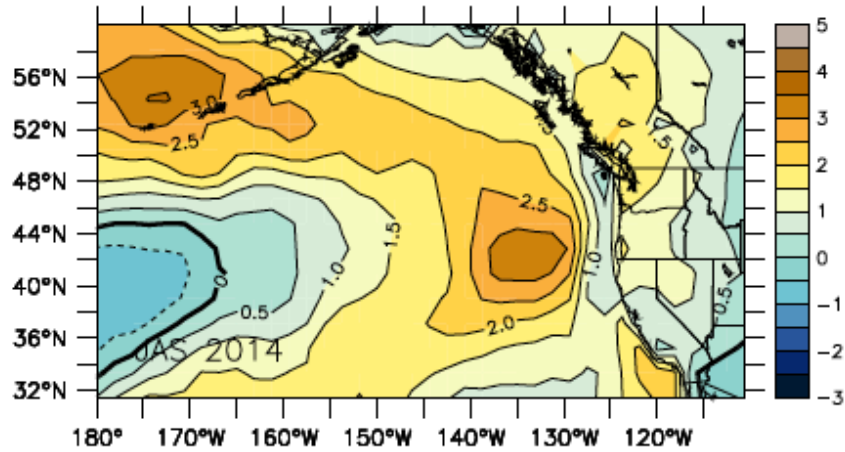
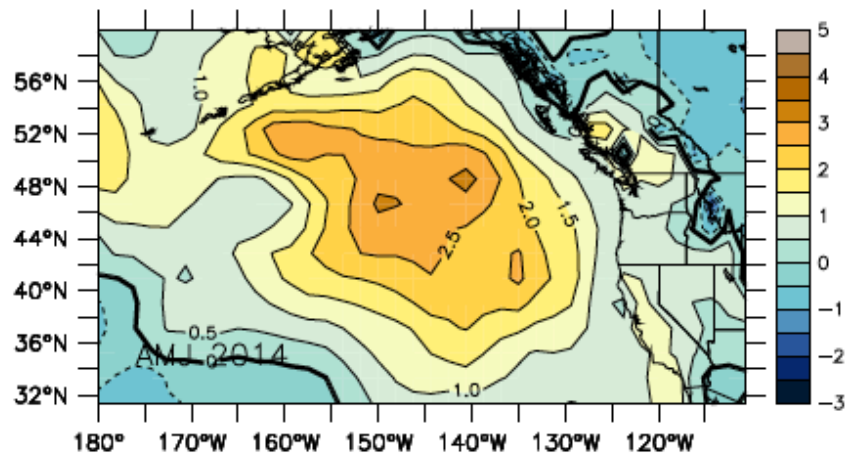
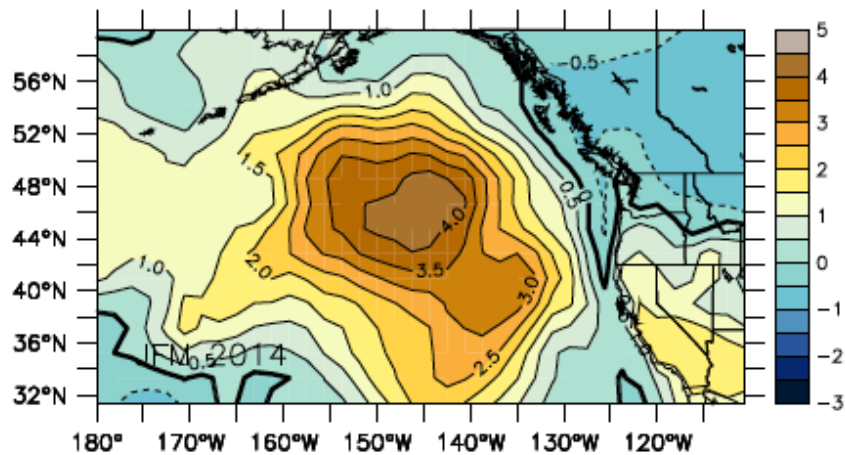
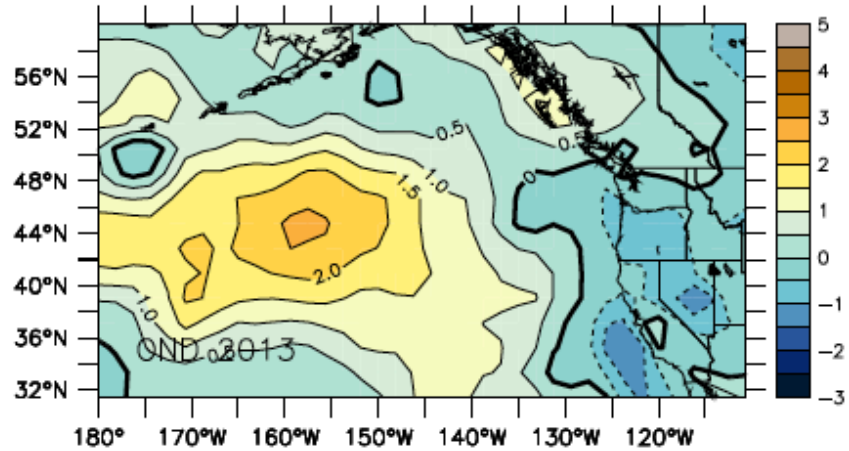
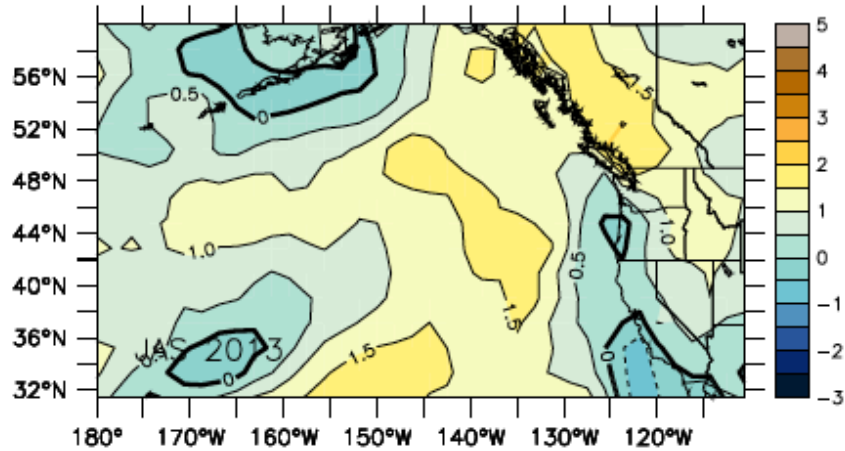
LONGITUDE : 125W(-125)
LATITUDE : 46.5N

Temperature Profile - Nearshore

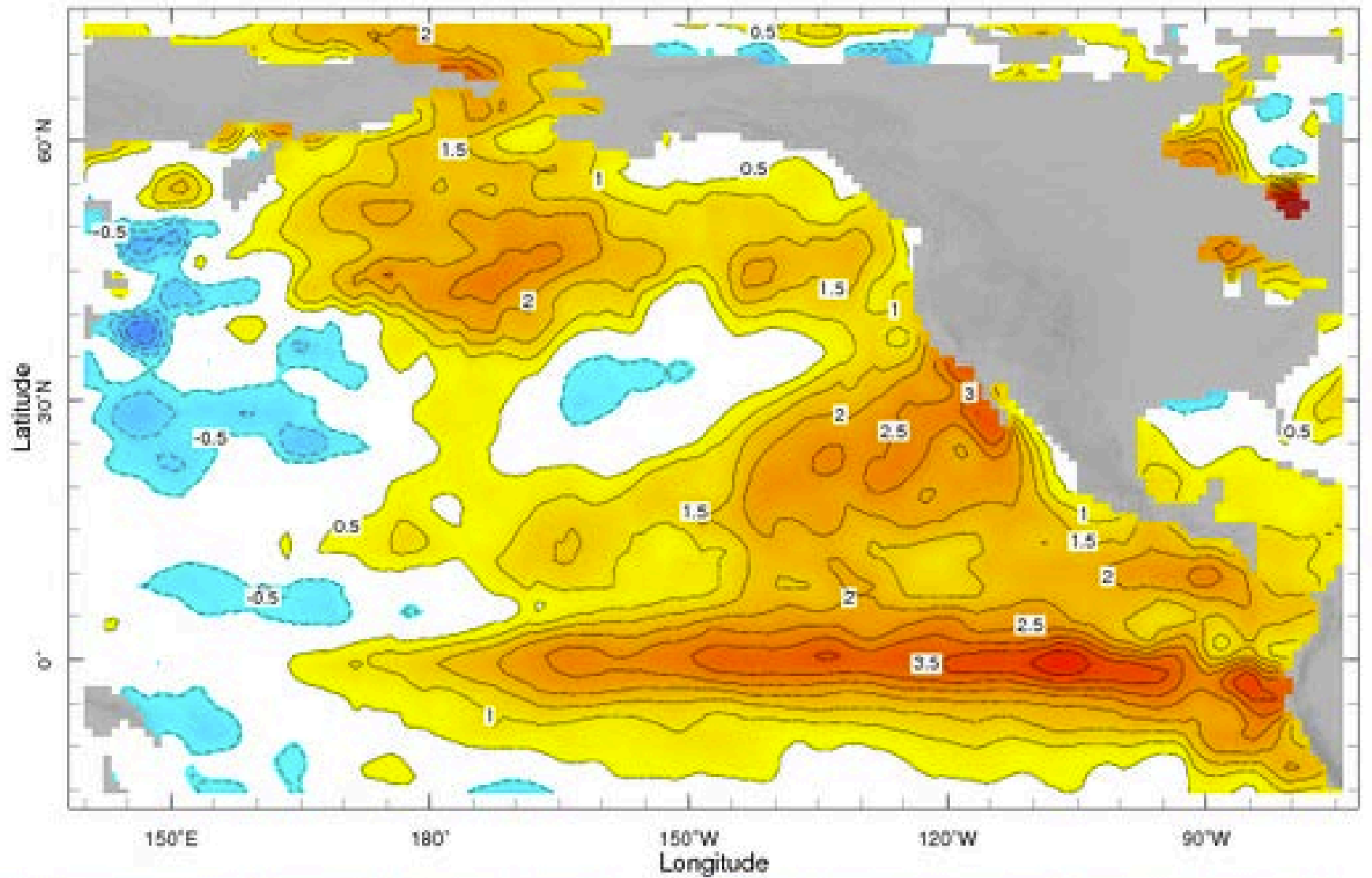
DATA SET: HYCOM + NCOA Global 1/12 Degree Analysis (3D)



potential temperature (degc)

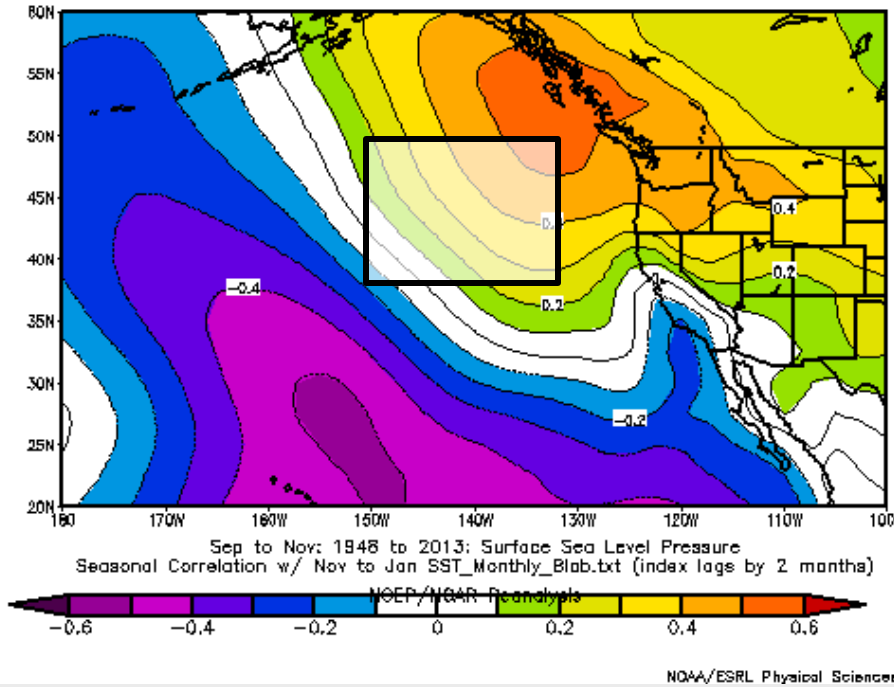


7 Oct 2015

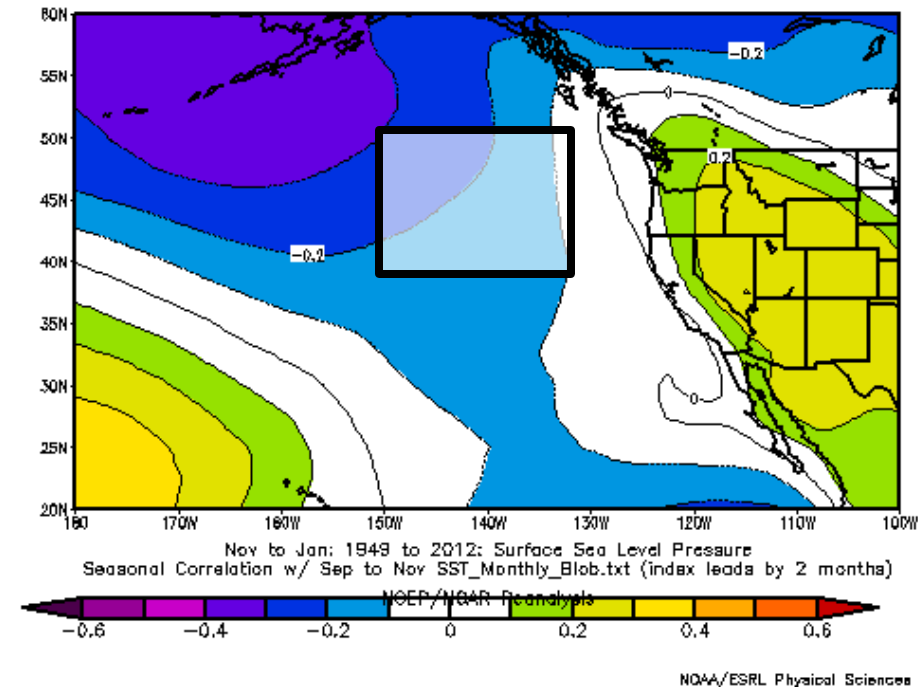


SLP Patterns with a NEP SST Index

SLP leads SST by 2 months

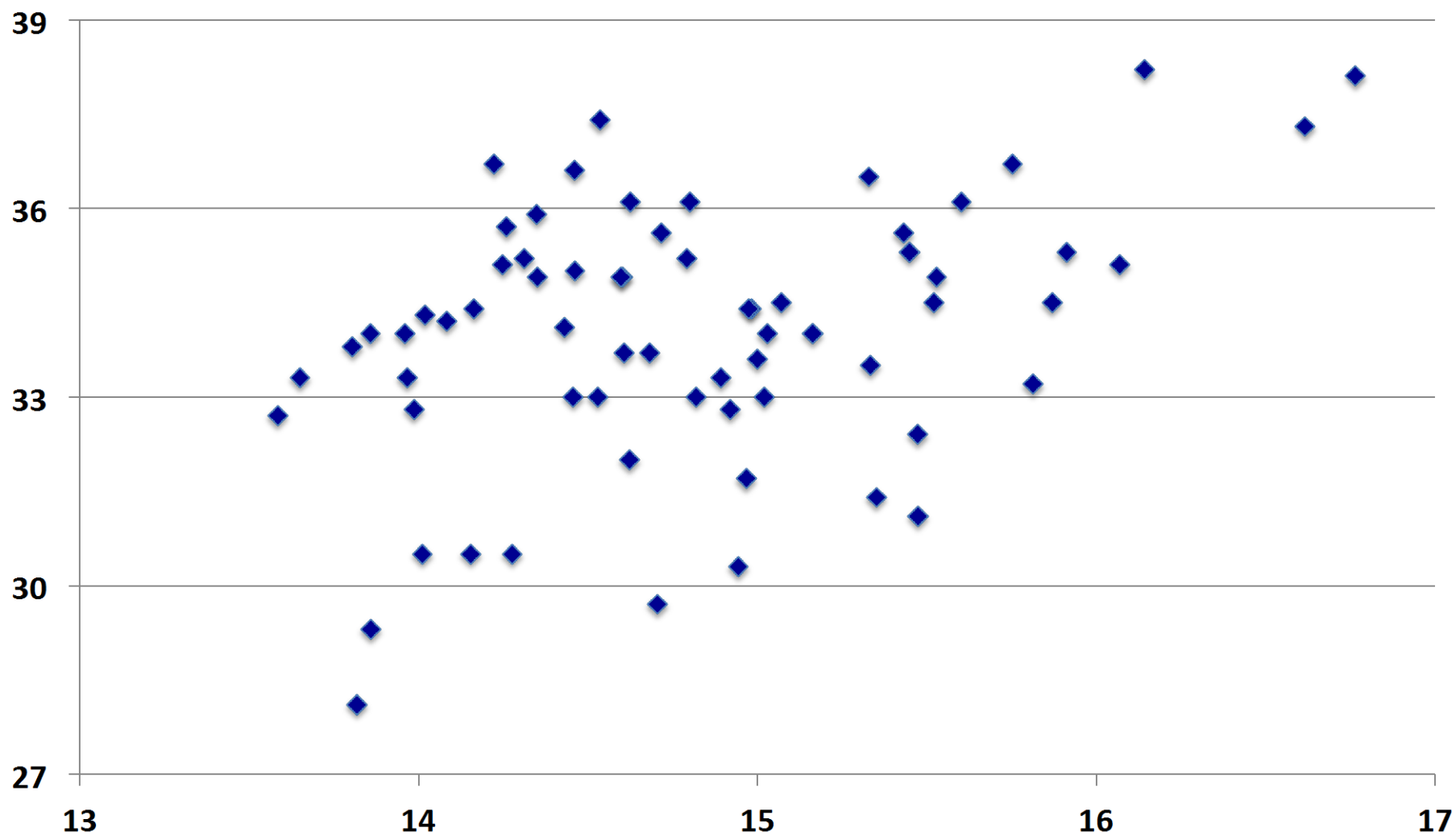


SLP lags SST by 2 months



SLP is a fairly good predictor of SST but not the reverse

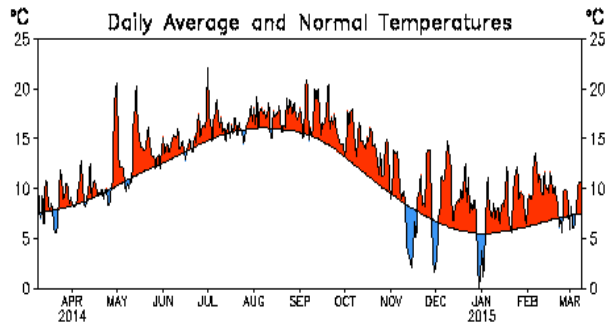
October SST (C) versus WA State Winter Temperature (F)



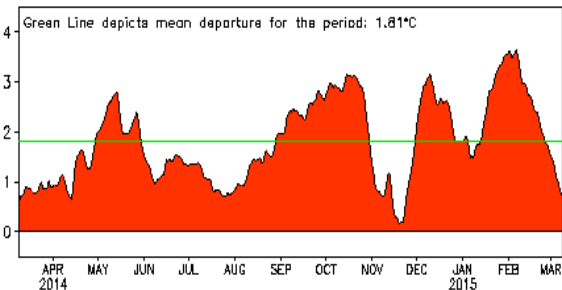
October SST

Almost every day during the last 18 months was warmer than average at US West Coast locations

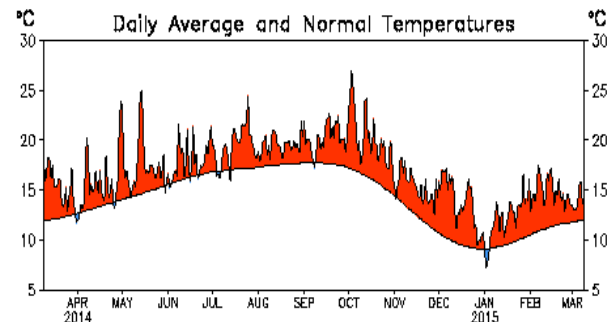
ASTORIA, OREGON



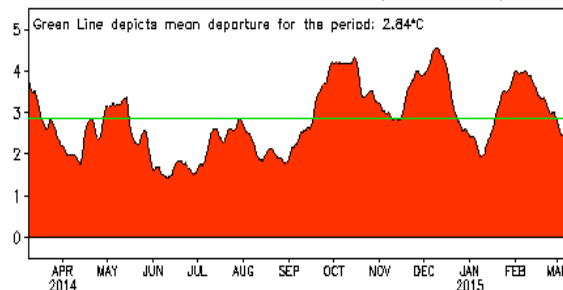
31-Day Running Mean of Daily Temperature Departures



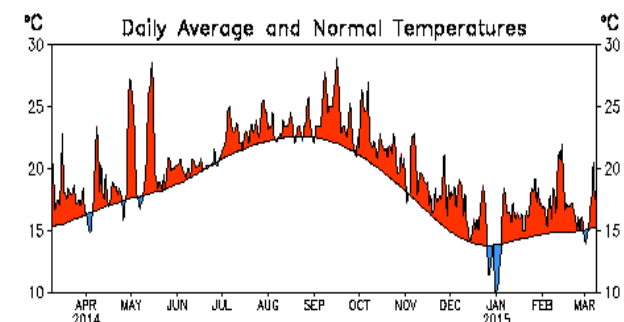
SAN FRANCISCO, CALIFORNIA



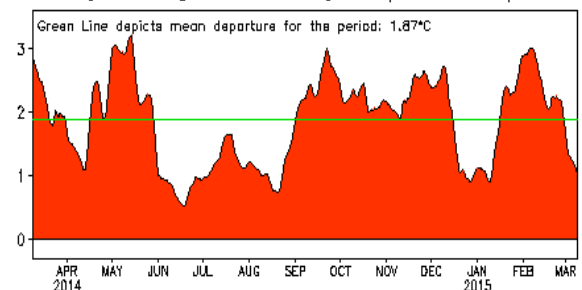
31-Day Running Mean of Daily Temperature Departures



SAN DIEGO/LINDBERGH, CALIFORNIA



31-Day Running Mean of Daily Temperature Departures



http://www.cpc.ncep.noaa.gov/products/global_monitoring/temperature/global_temp_accum.shtml

Final Remarks

- Strong and persistent atmospheric anomalies, with linkages to the far western tropical Pacific, have resulted in historically positive temperature anomalies in the NE Pacific
- The atmospheric and oceanic anomalies have varied with time; a variety of mechanisms have been at play
- The physical conditions in the NE Pacific are having major impacts on the marine ecosystem; we should be able to learn from this event